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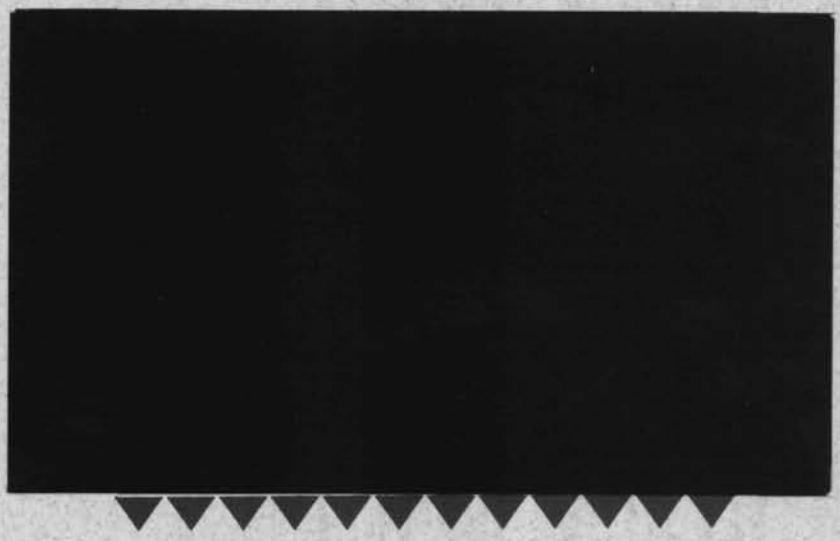

Survey or census? Estimation of Aboriginal and Torres Strait Islander housing need in large urban areas

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SERIES NOTE

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- to investigate issues relating to Aboriginal employment and unemployment;
- to identify and analyse the factors affecting Aboriginal participation in the labour force; and
- to assist in the development of government strategies aimed at raising the level of Aboriginal participation in the labour force and at the stimulation of Aboriginal economic development.

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ABSTRACT

A consultancy paper outlining the technical options for assessing Aboriginal and Torres Strait Islander housing need in large urban centres followed from discussions relating to the collection of Aboriginal and Torres Strait Islander statistics at the Centre for Aboriginal Economic Policy Research (CAEPR) workshop, 'A National Survey of Aboriginal and Islander Populations: Problems and Prospects' convened in April 1992. One issue raised in the proceedings was that the availability of accurate data on the social and economic characteristics of indigenous Australians has fallen behind the growth in demand for such statistics. Among the reasons advanced to explain this hiatus was a growing Aboriginal and Islander presence in urban areas with the associated difficulty of locating possible survey participants leading to bureaucratic statistical inertia.

This paper examines some of the difficulties faced by social scientists in attempting to derive a representative sample for survey purposes from Aboriginal and Torres Strait Islander populations resident in large urban areas and considers the range of options available for data acquisition. In the context of time and financial constraints, a preference is expressed in favour of census-based normative indicators supported by qualitative input from local organisations. While the discussion relates specifically to the estimation of housing need, the basic issues and methodologies outlined provide essential background for any attempt at information gathering from statistically rare populations.

Acknowledgements

I am indebted to discussions with a number of people for the ideas and issues raised in this paper. Particular thanks are due to Jon Altman, Alan Gray, Roger Jones, John Lea, Peter Phibbs, and Will Sanders, as well as to those who attended workshops held at the Australian National University, Canberra on 2nd July and 25th August 1992. Assistance was also provided by Graham Harrison of Census Applications Pty Ltd in Sydney and the Ian Buchan Fell Housing Research Centre, Sydney University. I am also indebted to Diane Smith and Anne Daly for comments on early drafts and to Linda Allen for her assistance in final preparation of this document.

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Foreword

CAEPR was approached by Australian Construction Services (ACS), national survey project managers for the Aboriginal and Torres Strait Islander Commission (ATSIC), in May 1992 to assist in addressing methodological issues associated with the undertaking of Phase 2 of the 1992 ATSIC Housing and Community Infrastructure Needs Survey. A key issue that needed to be addressed was whether the methodology used for Phase 1, conducted in April and May 1992, could be applied in Phase 2. The major difference between the two phases was that Phase 1 was limited to discrete Aboriginal and Torres Strait Islander communities with populations of less than 1,000 persons (although some communities of more than 1,000 were surveyed and some with less than 1,000 were overlooked) while Phase 2 was to be limited to Aboriginal populations of more than 1,000 in major urban and metropolitan centres.

CAEPR proposed to provide a technical options paper from a social sciences perspective that would canvass the range of methodological options available to undertake Phase 2. Because this is a technical paper, it was stated unequivocally that the consultancy would be based on desk, rather than field, research. The methods employed included literature search, consultation with the Australian Bureau of Statistics (ABS) and with specialist social scientists (especially at Census Applications, a Sydney-based consulting company and the Ian Buchan Fell Housing Research Centre, University of Sydney).

The consultancy was undertaken with a degree of urgency as ATSIC are keen for Phase 2 to be completed by, or soon after, 31 December 1992. The consultancy was also brief; it was undertaken by Dr John Taylor, Fellow in the Centre for Aboriginal Economic Policy Research, Faculty of Arts, Australian National University, in June and July 1992.

As part of the consultancy agreement with ACS, CAEPR undertook to convene two workshops. The first was undertaken midway through the consultancy to expose Dr Taylor's preliminary findings to academic and bureaucratic scrutiny. The workshop 'Technical Options for Undertaking Phase 2 of the 1992 ATSIC Housing and Community Infrastructure Needs Survey' was held on 3 July 1992. The workshop was attended by 24 participants from CAEPR, Australian National University (ANU); the Centre for Aboriginal Studies, Curtin University, Perth; the Social Science Data Archive, ANU; the National Centre for Epidemiology and Population Health, ANU; the Department of Political Science, ANU; the Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra; the I.B. Fell Housing Research

Centre, University of Sydney; ATSIC; ACS; ABS; and the federal Department of Health, Housing and Community Services.

The second workshop was held on 25 August 1992, with the specific aim of presenting Dr Taylor's final consultancy report for discussion by ATSIC regional council representatives from metropolitan centres. This second workshop was again attended by 24 participants, many of whom were not at the initial workshop. Participants came primarily from ATSIC, and included two Commissioners, regional council representatives from Hobart, Perth, Adelaide, Sydney, Brisbane and Darwin, and staff from ATSIC's Housing and Statistics Sections. Other participants came from CAEPR, ANU; the University of Sydney; ABS; Aboriginal Hostels Ltd; ACS and the Department of Health, Housing and Community Services. Besides a presentation of Dr Taylor's findings, additional formal commentary was provided by Mr Peter Gulliver, ACS; Dr John Lea, I.B. Fell Housing Research Centre, University of Sydney; and Dr Peter Phibbs, Department of Urban and Regional Planning, University of Sydney.

When applied consultancy research is undertaken by CAEPR staff, there is a requirement that research outcomes are published. CAEPR's consultancy agreement with ACS and ATSIC allowed, and indeed encouraged, immediate wider dissemination of Dr Taylor's report. This discussion paper is almost identical to the consultancy report, the only differences being some updating of statistical data from Phase 1 of the 1992 ATSIC Housing and Community Infrastructure Needs Survey, some minor changes suggested by external referees and workshop participants and some alterations to layout to maintain compatibility with the CAEPR Discussion Paper series.

Jon Altman
Series Editor
September 1992

The periodic calculation of a national estimate of Aboriginal and Torres Strait Islander housing need forms a central plank of Aboriginal and Torres Strait Islander Commission (ATSIC) negotiations with the Commonwealth and State governments on the provision of physical infrastructure. The most recent round of such activity is being conducted in two phases and is to be completed by the end of 1992. Phase 1 of the exercise has already been carried out using the ATSIC Housing and Community Infrastructure Needs Survey as the primary vehicle for information gathering. The target population for this survey was defined as those urban centres and rural localities containing less than 1,000 Aboriginal and Torres Strait Islander residents, although this criteria was not fully applied. By default, therefore, the target population for Phase 2 of the exercise represents a residual from Phase 1 and will attempt to derive a statistically sound and comprehensive measure of Aboriginal and Torres Strait Islander housing need in all major urban and metropolitan centres.

As in all such cases of social program assessment, determination of the choice of methodology for information gathering depends on the questions to be answered. For Phase 2 of the ATSIC Housing and Community Infrastructure Needs Survey, the consultants for the Aboriginal and Torres Strait Islander Commission, Australian Construction Services, have identified two broad objectives. Firstly, to determine the number of family units (and resultant number of people) requiring housing. Secondly, to determine the physical condition of the current housing stock owned by Aboriginal and Torres Strait Islander organisations. The emphasis here is on the technical options for addressing the first of these objectives.

Having already gathered a major component of the data required for a national estimate of housing need, an obvious consideration for conducting Phase 2 would be whether to replicate the Phase 1 survey methodology. This option is considered here, together with a range of alternatives, and found wanting. Leaving aside certain methodological concerns, the range of information sought in Phase 2 is much less than in Phase 1, being concerned only with housing requirements and not with community infrastructure. This provides options for data acquisition other than from a survey.

Thus, data are required to set the demand for new dwellings against the existing and anticipated housing stock. For this calculation, State housing authorities employ a variety of conventional statistical techniques using standard social indicators and the option of employing a similar methodology in Phase 2 is canvassed. However, the question of the cultural appropriateness of standard social indicators immediately arises (Smith 1992), although much depends here on the population for which

data are required and the characteristics to be measured. At the same time, Altman (1992: 9) suggests a continuum in the applicability of social indicators: in remote areas where Aboriginal and Torres Strait Islander groups may be more tradition-oriented, social indicators may be culturally inappropriate, whereas in urban contexts such measures may be extremely relevant given the frequent residential integration of Aborigines and Torres Strait Islanders into mainstream housing.

The range of technical options explored for conducting Phase 2 therefore covers more than just the prospect of a survey. In terms of preferences for available options, much depends on how need is defined and measured and the discussion opens with a consideration of these matters. The range of methods used to date to assess housing need for the general population and for the Aboriginal and Torres Strait Islander populations are then reviewed.

Which, if any, of these existing methodologies may be usefully applied in Phase 2 is in part determined by the characteristics of the target population and a detailed description of this population is provided in terms of the numbers resident in each urban centre according to preliminary counts of the 1991 Census and the diversity of their housing circumstances. This forms a backdrop to a consideration of the options available for an assessment of housing requirements. Two broad approaches, qualitative and quantitative, are identified although these are not seen as necessarily juxtaposed. Most attention is given here to a review of quantitative approaches and a variety of issues are considered in relation to the essential problem of deriving an adequate sample from an unknown quantity for survey purposes. The use of social indicators derived from census data is then explored as an alternative to a survey.

Defining housing need

Dimensions of need

Need is a nebulous concept for which there is no universally accepted definition. In the social policy arena, need may be defined as the extent to which objectives are not met. As far as housing policy is concerned, such objectives are typified by the goals of the National Housing Strategy described for the population as a whole as follows:

> ensuring that all Australians have access to quality housing; housing which is appropriate to their needs at different times of their lives, which is well located in relation to employment opportunities, transport and other services, and which is obtainable at an affordable price (Commonwealth of Australia 1991a: ix).

In this context, it is a simple matter to conceptualise need as the amount and type of housing required to overcome any shortfall between existing

housing stock and that required to achieve stated goals. However, the next step of measuring this gap, is not so straightforward. Before deciding on the appropriate yardstick(s) to use, a number of first-order questions require clarification. For example, what is quality? what is appropriate? what is well located? what is affordable? All of these require definition before they can be measured. To compound the issue, it could be argued that need is subjectively determined by individual perceptions and that, in any case, all need is relative. A typology of need devised by Bradshaw (1977) emphasises the shifting focus between collective and individual conceptions of need. Four basic dimensions of need are described:

Felt need: This is based on the perceptions of the individual experiencing need. It is equated with want and may be biased evidence of 'real' need when an individual is not fully informed, unable or reluctant to ask for help, or is thought to be inflating experienced need.

Expressed need: This is synonymous with market demand and assessed by actual utilisation of facilities.

Comparative need: A measure of need determined empirically by comparing the characteristics of people with and without access to a particular good or service. Where the characteristics are the same but access varies then comparative need exists.

Normative need: This is determined when a standard is established and comparisons are made between the standard and what actually exists. When an individual or group falls short of the desirable standard, a need is said to exist.

For the purpose of establishing a gross estimate of housing need, a normative measure based on calibrating housing shortfalls against an agreed set of standards is the most appropriate and most widely used. As Phibbs (1985a) points out, 'felt needs' may be useful to establish in a detailed local area study, but they have far less relevance in the assessment of need at the State or national level. Furthermore, people always feel they could improve their housing situation, and for this reason it is prudent to be cautious about including attitudinal questions on housing in a survey (Gray 1992: 117). Problems also exist in the use of expressed need as an indicator. This simply reflects individual access to housing via the market system and as such has potential to underestimate actual need. Phibbs (1985a), for example, cites the case of young singles who may express a desire (need) to live away from their families, but are constrained from doing so by a lack of financial resources. He also notes the limited capacity of public housing waiting lists to serve as a basis for estimating housing need. At best, these reflect a particular category of

expressed need and, for a variety of reasons, invariably understate actual need.

Need implies some state of inadequacy which can only be measured by reference to a given set of standards. However, just what these standards might be depends on value judgements about what is necessary for individual and social well-being. Chambers, Wedel and Rodwell (1992: 189-211) identify a range of such measurement issues associated with the use of quantitative methods for enumerating conditions upon which estimates of need is based. In the context of housing need, some trade-off is clearly inevitable between the search for an all-embracing set of standards against which to calibrate housing shortfalls and the complex reality of differing views regarding the appropriateness of various measures.

While some limitation is set by the range of available data, the tendency in Australia among those attempting to measure housing need (such as State housing authorities) is to seek qualification of statistically-derived need profiles by close consultation with community groups (Phibbs 1985a). This is essentially a means of strengthening the validity of hard data by testing for complementarity with data from other sources (Chambers, Wedel and Rodwell 1992: 199-201). In the context of any attempt to establish normative indicators of Aboriginal and Torres Strait Islander housing need, such a process would prove an essential first step (Jonas 1992).

Assessing housing need

A range of methodological approaches have been developed for use in need studies and these can be categorised according to whether their emphasis is qualitative or quantitative. In the assessment of housing need, quantitative approaches are the most common, although qualitative methods have also been employed to obtain statistical information, most notably through the use of key informants such as community leaders.

General population

In line with international guidelines on the measurement of housing need (United Nations 1967), quantitative methods are invariably adopted by housing authorities, urban planners and social scientists around the world (Cullingworth 1958; Lujanen 1983; Nelson 1992) and in Australia (King 1973; Field 1984; Fleming, Hudson and Jeffrey 1985; Phibbs 1985a,b; Gray 1988; Lea and Cameron 1992) in pursuit of normative assessments of need. In general, statistical indicators that are thought to be closely associated with housing need are identified and used to establish estimates of need through inference. Allowing for degrees of variation, such

normative measures have generally been derived as a function of the appropriateness of housing stock (in terms of crowding and household composition) and its affordability (proportion of income spent on housing costs). According to Phibbs (1985a) there are three main reasons why an individual or persons could be in need of housing. The first of these relates to the quality of housing stock; for example, a house may be in a poor state of repair. The second relates to the appropriateness of housing stock; for example, a dwelling might be considered too small. It may also be poorly located in relation to essential services. Finally, affordability of housing is an important consideration as some individuals may be paying too large a proportion of their total income in housing costs.

A characteristic example of need assessment that falls within these broad parameters is provided by the generalised need model employed by the Victorian Ministry of Housing and Construction to derive an index of housing need. This involves the identification of a range of need indicators which are then averaged to identify populations 'at risk' (those in potential need of housing). To illustrate the sorts of social indicators commonly employed in this type of exercise, the range of data used by

Figure 1. Victorian housing need indicator data, 1985.

Occupancy characteristics
- Number of households 1981
- Estimated number of households 1983
- Households living in overoccupied conditions
- Households living in caravan parks, boarding houses and refuges

Affordability
- Renters with affordability problems
- Purchasers with affordability problems

DSS recipients
- Pensioners in receipt of supplementary rental assistance
- Persons in receipt of unemployment benefits
- Persons in receipt of sickness benefits
- Persons in receipt of family income supplement
- Persons holding low income health cards

Stock
- Households on Ministry of Housing waiting lists
- Annual public housing vacancy lists
- Anticipated additions to Ministry stock
- Current levels of Ministry of Housing rental stock

Source: Fleming, Hudson and Jeffrey (1985).

the Victorian Ministry of Housing in their 1985 assessment is shown in Figure 1.

In this exercise, affordability indicators are typically based on census data. In the Victorian case shown here, these identify people earning less than average weekly earnings and paying more than 25 per cent of their gross incomes in private rents or mortgages. Overoccupancy is also determined from census data and defines a situation where the number of persons in a household is in excess of the number of rooms in a dwelling. This is in line with conventional measures of overcrowding (Cullingworth 1958; Field 1984), although King (1973) has shown how the number of dwellings defined as overcrowded may vary considerably depending on the precise standards set for persons per room. Phibbs (1985a) also points out the difficulties of applying a standard for overcrowding in the Australian context even when using a preferred measure of persons per bedroom.

The generalised need model does not produce an estimate of the total amount of housing need. It is essentially a distributive device to assist in prioritising housing allocations between regions. However, any one of the individual indicators could be employed to derive a gross figure of households/individuals in need within varying limits of confidence. The tendency in housing need assessment has been to try and reduce reliance on such indicators and move towards a more comprehensive methodology focussed on a greater appreciation of the workings of local housing markets.

Aboriginal and Torres Strait Islander populations

Calculation of a national statistic of Aboriginal and Torres Strait Islander housing need has formed a important component of Aboriginal affairs policy since the establishment of the Department of Aboriginal Affairs (DAA). The history of this endeavour has been outlined by Sanders (1990). Briefly, successive need surveys have revealed a massive repair bill for existing stock and a growing backlog of additional dwellings required simply to keep pace with the growth in demand owing to population growth.

The general methodology used in this assessment has been broadly consistent over time and has employed qualitative methods to generate statistical information. Up to 1987, housing need was determined by DAA and Aboriginal Development Commission (ADC) officers in consultation with key informants from discrete Aboriginal and Torres Strait Islander communities, thus excluding the population in large urban centres. The qualitative approach adopted involved a subjective assessment of the overall numbers requiring housing in each locality based largely on the perceptions of informants employing local knowledge. In 1987, survey

teams were deployed to obtain data for a more normative calculation of housing requirements, but once again using information acquired from key informants. These data included estimates of the population and the existing habitable stock. The number of extra dwelling units required to adequately house the population was calculated using a standard criteria of two persons per bedroom (Commonwealth of Australia 1991b: 458). This is similar to the Australian Housing Research Council Project 90 which estimated Aboriginal housing need in South Australia using a crowding measure for dwellings based on information provided by community organisations (Braddock and Wanganeen 1981).

Phase 1 of the 1992 ATSIC Housing and Community Infrastructure Needs Survey is essentially of this genre and represents the most comprehensive attempt at data collection to date. However, unlike the 1987 ADC need survey, determination of the requirements for additional dwellings was not based on an attempt at normative measurement, but was left to the discretion of local reference groups. The only attempt at a comprehensive estimate of housing need using a conventional quantitative approach is Gray's (1989) analysis of sequential census data to derive rates of household formation. This demonstrated a link between changing family structures, age distribution, and the creation of new households and concluded that inroads into the backlog of Aboriginal housing need were persistently retarded by new demand.

The Phase 2 target population

Geographic coverage

In theory, Phase 1 of the 1992 ATSIC Housing and Community Infrastructure Needs Survey included all urban centres and rural localities with less than 1,000 Aboriginal and Torres Strait Islander residents. By definition, therefore, the Phase 2 target population should include all urban centres with more than 1,000 Aboriginal and Torres Strait Islander residents. However, without the benefit of 1991 Census data, determination of which localities to include in Phase 1 was left largely to local reference groups. As a result, some variation from the established criteria occurred. For example, a number of urban centres with more than 1,000 Aboriginal and Torres Strait Islander residents in 1991, were covered in Phase 1. These included Moree, Kempsey, Dubbo, Tamworth, Geraldton, Port Hedland, Broome, Derby and Carnarvon. At the same time, other centres (Gold Coast, Shepparton) with less than 1,000 Aboriginal and Torres Strait Islander residents were not included in Phase 1. Also excluded was the whole of Tasmania except Cape Barren and Flinders Islands.

Given the discrepancies in Phase 1 coverage, it is prudent to regard the Phase 2 target population as the residual from Phase 1. Using preliminary counts from the 1991 census this produces a population of 104,490 comprising 88,628 Aborigines and 15,862 Torres Strait Islanders (Table 1) while final census counts are likely to produce a slightly higher figure than this. Leaving aside the balance of Tasmania outside Hobart and Launceston, this leaves 24 urban centres spread across all States and Territories with almost two-thirds of this population (61.8 per cent of Aborigines and 65.2 per cent of Torres Strait Islanders) resident in metropolitan centres. It should be noted, however, that there is some doubt concerning the accuracy of preliminary 1991 Census counts which enumerated three times more Torres Strait Islanders in Sydney and Melbourne than in Brisbane (Gaminiratne 1992; Taylor and Arthur 1992).

Table 1. Phase 2 target population, 1991.

	Aborigines	Torres Strait Islanders
Sydney	17,957	3,800
Newcastle	1,012	134
Wollongong	1,210	147
Gosford-Wyong	1,483	187
Wagga Wagga	866	80
Brisbane[1]	11,617	1,828
Toowoomba	1,161	66
Gold Coast	669	105
Rockhampton	1,599	228
Mackay	649	719
Townsville	3,570	853
Cairns	1,594	1,436
Mt Isa	2,532	114
Darwin	5,573	421
Alice Springs	3,604	23
Canberra	1,467	124
Melbourne	5,828	2,518
Shepparton	699	44
Hobart	2,460	503
Launceston	813	93
Balance of Tasmania	3,999	644
Adelaide	5,807	1,319
Pt Augusta	1,318	14
Perth	11,141	462
Total	88,628	15,862

1. Includes Ipswich.

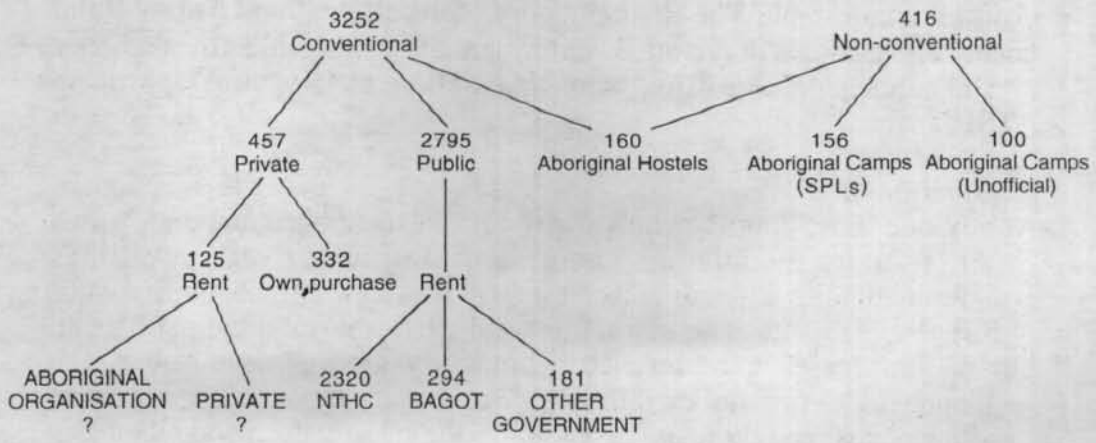
Source: Preliminary counts of the 1991 Census.

Clearly, Phase 2 of the ATSIC Housing and Community Infrastructure Needs Survey is not limited to metropolitan centres. A significant proportion of the target population is resident across a wide spread of smaller urban centres in a variety of locations ranging from Alice Springs and Mt Isa to Newcastle and Wollongong. Any representative survey would need to incorporate the variety of housing circumstances represented in this geographic spread.

Housing tenure

The Phase 2 target population is not a homogeneous group. In large urban areas, Aboriginal and Torres Strait Islander households and individuals are distributed across a wide range of housing circumstances that may be broadly classified into three tenure types, those in private dwellings, those in non-private dwellings and the homeless. Before embarking on an assessment of housing need in Phase 2, decisions regarding the scope of the exercise need to be taken as the options for data collection vary considerably, not only between each of these three broad sectors, but also within them.

Figure 2. The Aboriginal and Torres Strait Islander housing supply system in Darwin, 1986.



Note: Numbers represent the Aboriginal and Torres Strait Islander population in each category. SPLs refer to Special Purpose Leases, NTHC refers to the Northern Territory Housing Commission, Bagot refers to the Bagot Community in Darwin.

Sources: Drakakis-Smith (1984: 111); 1986 Census; Northern Territory Department of Community Development; Aboriginal Hostels Ltd, Darwin.

Some indication of the complexity of the target population is provided by Figure 2 which illustrates the Aboriginal and Torres Strait Islander housing supply system in just one of the Phase 2 urban centres, Darwin. It is important to note that components of the housing supply system (notably town camps) located in some of the Phase 2 urban centres were included in the Phase 1 survey. Once again, however, determination of the precise sub-composition of the Phase 2 population is best seen as a residual.

Private dwellings

The bulk of the Phase 2 target population is located in private dwellings. Of those, a majority are found in rental accommodation, particularly that provided by State and Territory Government housing authorities. The remainder of households renting accommodation do so primarily in the private sector or via Aboriginal organisations. Unfortunately, census data do not distinguish between dwellings rented from Aboriginal housing organisations and those rented from other non-government landlords. This lack of distinction in the census data has implications for housing need assessment as those renting from private landlords may represent a latent demand for public housing. One sub-group in the private rental sector that is readily associated with need are those people accommodated in long-stay caravan parks. Although caravan park residents are identified in the census, other non census-based means of identifying the private rental sector in general (such as Department of Social Security (DSS) data on rental assistance) would be necessary if the intention is to disaggregate need by tenure-type. The final category of Aboriginal and Torres Strait Islander households in private dwellings are those who either own a house or are purchasing one using bank or building society mortgage or an ATSIC loan.

Non-private dwellings

At any one time, approximately 5 per cent of the Aboriginal and Torres Strait Islander population is resident in non-private dwellings predominantly in large urban centres (Australian Bureau of Statistics (ABS) 1991: 15). In some cases, this residential status will be permanent, but in most cases it represents a temporary arrangement in-between residence in a private dwelling. A variety of types of non-private dwellings exist, and these are as varied as the reasons for people being in them. They include hotels, motels, staff quarters, boarding houses, boarding schools, residential colleges, hospitals, nursing homes, hostels for the homeless, night shelters, refuges, child care and other welfare institutions, prisons and detention centres. By their very nature, some of these (such as hostels for the homeless) are likely to contain individuals with particular housing need and they therefore form an important component of any need assessment exercise.

Special collectors are used at census time to obtain information on individuals resident in non-private dwellings and those who identified as Aboriginal or Torres Strait Islander in 1986 are shown in Table 2. It is difficult to verify the accuracy of such census data. Of the two groups most likely to include individuals in need of housing (those in boarding housing and hostels) the figure of 1,480 in hotels, motels and boarding houses appears to be an underestimate given that Aboriginal Hostels Ltd alone had the capacity to accommodate more than 3,000 individuals at the time of the 1986 Census. No independent check is available for the number of homeless people recorded in hostels and shelters, although this is almost certainly an underestimate given the difficulties involved in enumerating this group even in highly focussed studies (Burdekin 1989).

Table 2. Aborigines and Torres Strait Islanders in non-private dwellings by urban centre, 1986.

	Hotel, board-house	Hostel for homeless	Other[a]
Sydney	325	83	392
Gosford-Wyong	2	1	12
Newcastle	26	0	86
Wagga Wagga	7	4	17
Wollongong	2	3	16
Canberra	34	9	26
Melbourne	107	20	134
Shepparton	1	1	8
Brisbane	164	4	338
Toowoomba	11	16	35
Gold Coast	20	1	1
Rockhampton	62	9	71
Mackay	7	2	10
Townsville	89	49	319
Cairns	89	32	106
Mt Isa	30	7	63
Adelaide	84	18	230
Pt Augusta	10	8	86
Hobart	12	7	36
Launceston	7	0	13
Perth	60	63	435
Darwin	188	14	473
Alice Springs	143	4	451
Total	1,480	355	3,358

a. Includes hospitals, prisons, residential colleges etc.

Source: 1986 Census.

The considered view of the Burdekin Inquiry into Homeless Children was that accurate information was more likely to be obtained directly from people in frequent contact with the homeless (such as community workers and those administering overnight shelters) than from the census or other official survey efforts (Burdekin 1989: 65). The same comment may equally apply to information regarding Aborigines and Torres Strait Islanders in all types of non-private dwelling. For example, Aboriginal Hostels Ltd maintain records on all their residents and this includes an indication of those seeking alternative accommodation.

The homeless

In 1988, it was estimated that as many as 100,000 individuals in Australia may be homeless (Burdekin 1989: 67). No data exist to indicate what proportion of this population were Aborigines or Torres Strait Islanders, although anecdotal evidence presented to the Burdekin Inquiry into Homeless Children suggested that Aboriginal youth were proportionally more likely to be homeless than other youth (Burdekin 1989: 129). What is clear is that many homeless Aborigines and Torres Strait Islanders are statistically hidden. Those in refuges and shelters at any one time provide some indication of numbers but, as the Burdekin Inquiry found, such accommodation satisfies only a fraction of the demand. Furthermore, it was noted that many young homeless people did not approach refuges for variety of reasons including fear of being institutionalised (Burdekin 1989: 67).

Despite the certainty of a growing demand for crisis accommodation, considerable difficulties exist in specifying the precise incidence of homelessness, to say nothing of the composition of the population involved. This stems from the lack of any clear definition of homelessness combined with the methodological problems of counting people who have no fixed residence. Take, for example, one definition: 'those who do not have customary and regular access to a conventional dwelling or residence' (Rossi, Wright, Fisher and Willis 1987). As the authors point out, questions arise regarding what properly constitutes 'customary and regular access' as well as the precise meaning of a 'conventional dwelling or residence'. What is clear, however, is that a continuum exists from the obviously housed to the obviously homeless. At the same time, any attempt to draw a line across that continuum, demarcating the housed from the homeless, is arbitrary and potentially contentious (Rossi, Wright, Fisher and Willis 1987: 235). The Burdekin Inquiry, for example, drew attention to the particular problems of defining Aboriginal homelessness in a cultural setting where extended family networks often assume the burden of caring for itinerant 'homeless' individuals (Burdekin 1989: 129-30).

As with the population in non-private dwellings, gross estimates of the number of homeless Aboriginal and Torres Strait Islander people are probably best obtained through community networks. In this regard, an obvious starting point would be Aboriginal Hostels Ltd who have recently assumed an interest in providing accommodation for the homeless with the provision of homeless hostels in Melbourne and Newcastle, and have established working arrangements with a wide variety of government and non-government organisations involved with the homeless. Likewise, the DSS Youth Link Project aims to improve access to DSS services among homeless Aboriginal youth and has established pilot projects to service the homeless in all metropolitan centres except Brisbane. Other avenues include community services departments of the various State and Territory governments who maintain records of clients in care, although serious doubts about the accuracy of child welfare statistics have been raised, to say nothing of those who fall outside the welfare safety net (Usher 1992: 15-21). The only other means of acquiring data on the homeless would be to conduct a survey and the main difficulty here would be developing a methodology for obtaining a representative sample.

Survey options for assessing housing need

Key informants

Phase 1 of the ATSIC 1992 Housing and Community Infrastructure Needs Survey obtained statistical information from key informants in structured reference groups. While standard practice would suggest that an identical procedure be adopted in Phase 2 to ensure consistency and comparability of data, this is not recommended here for a number of reasons. First, it is doubtful that reference groups could be established in all major urban and metropolitan centres in a manner that fully represents the target population. Despite some obvious concentrations, a good proportion of Aboriginal and, particularly, Torres Strait Islander, households are widely dispersed throughout the suburbs of large cities and there is considerable potential for 'outliers' to be missed. Given that multiple reference groups would be required in the larger centres, there is also potential for an overlap in representation and subsequent inaccuracy.

Even assuming that problems of representation could be overcome, difficulties remain with the use of perception of need (particularly established second-hand) as the basis for measuring housing requirements. Because of the lack of statistical rigour that this represents, it is contrary to most standard methodologies for housing need assessment which employ normative techniques. Nonetheless, there is a need for qualitative input from community groups in the setting of normative standards and for the purpose of critically assessing any statistical need profile

developed using quantitative techniques. This is consistent with general methodological trends in housing need assessment which is moving towards a more holistic approach involving greater community inputs (Fleming, Hudson and Jeffrey 1985; Phibbs 1985b). As already discussed, the main prospect for the direct use of a key informants approach to information gathering is in the assessment of need among the homeless.

Sample size

A total of 51,534 Aboriginal and Torres Strait Islander households were identified by the 1986 Census with an average size of 4.48 persons. In the absence of equivalent 1991 Census data at present, the number of households in 1991 may be estimated to be 57,440 using the 1991 Census preliminary count of the Aboriginal and Torres Strait Islander population and assuming the 1986 average household size to be constant. Given that the Phase 2 target population represents 38 per cent of the 1991 Census total, a crude estimate of 22,150 target households for Phase 2 can be derived. The question of how many of these households would need to be selected for inclusion in a survey is one that depends on range of factors. Obviously, the aim of any survey based on probability sampling is to derive a sample that is statistically representative of the target group. Despite the difference in size between the Aboriginal and Torres Strait Islander populations (Table 1), this does not necessarily mean that substantially more Aboriginal households would need to be represented in any sample, although this is likely.

The first determinant of sample size is the level of resources available for the survey. If these are considerable, then the aim might be to minimise standard errors by surveying a large sample. A large sample may be necessary anyway if the purpose of the survey is to produce detailed cross-classifications of data. For example, it may be desirable to disaggregate housing need by age groups (youth, aged, etc.), family type (single parents, couples with dependents, etc.) and housing tenure (private rental, state rental, etc.). In such an instance, it would be necessary to ensure that the sample size of each sub-group was sufficiently large to produce reliable estimates. The sample size may also need to be inflated in order to compensate for expected levels of non-response.

Sampling frame

This refers to a list of dwellings or set of geographic areas from which a sample will be drawn. No adequate listing of Aboriginal and Torres Strait Islander dwellings exists for the Phase 2 target population and so one would have to be created. Several ways of compiling a list for sampling are available. One option would be to make use of existing sampling frames established by ABS for use in their regular special surveys. If this vehicle provided adequate coverage of the Aboriginal and Torres Strait Islander population then the main advantage would be cost-effectiveness.

However, ABS sampling frames, such as that used in the Labour Force Survey, cover only one per cent of the Australian population and it is unlikely that this would include Aboriginal and Torres Strait Islander households in sufficient numbers to provide representative data across the range of housing situations in urban areas experienced by the Phase 2 target population.

Screening

This involves compiling a list by taking a sufficiently large sample to contain an adequate number of members of the minority group. It is evident that if the minority group is small then the general population sample will have to be large. One drawback is that screening is expensive as it invariably involves visiting large numbers of dwellings and costs increase rapidly as the degree of rarity rises (Sudman 1972, 1985; Ericksen 1976; Kalton and Anderson 1986: 66-8). This is demonstrated in Table 3. An example of the potential scale of screening required for the type of survey contemplated here is provided by the Issues in Multicultural Australia sample survey (Jones and McAllister 1988) which screened 13,411 dwellings to arrive at 2,560 eligible dwellings. The scale of screening can be tempered somewhat if the minority population is spatially clustered. The extent to which this is the case among the Aboriginal and Torres Strait Islander populations is discussed in the following section.

Table 3. Screening sample size required for 500 members of a specified minority under variable assumptions.

Incidence of minority (per cent of total population)	Size of screening required
1.0	50,000
2.0	25,000
3.0	16,666
4.0	12,500
5.0	10,000
10.0	5,000

Source: Hedges (1979).

Area sampling

If the minority population is spatially concentrated then it may be possible to identify a small proportion of areas such as census Collection Districts (CDs) that contain a sufficiently high proportion of the minority to provide an adequate focus for sampling. These can then form the basis

for sampling with probability of selection proportional to size (Hedges 1979: 255-9). Careful design of the sampling frame in this way should avoid any trade-off between focussing the survey in selected areas of concentration and the relative exclusion from the sample of those living at lower densities in outlying areas. However, questions may still arise concerning the representativeness of such sampling. A problem may arise, for example, if the census data used to exclude certain areas from the sample are out-of-date. If the distribution of the minority group has changed markedly in the interim this may introduce considerable bias (Kalton and Anderson 1986: 72). Likewise, the population living in or away from the main concentrations may display characteristics of particular concern to the study which may influence sampling decisions. For example, a particular focus may be desired on households in public or private rental accommodation, the distributions of which may be quite different.

Table 4. Number of urban CDs with varying concentrations of Aboriginal population, 1991.

	Aboriginal proportion of CD population				
	over 10%	5.0-9.9%	1.0-4.9%	0.1-0.9%	0.0%
Sydney	5	40	757	2,518	2,259
Gosford-Wyong	0	0	107	216	129
Newcastle	0	1	78	134	63
Wollongong	1	0	60	161	61
Wagga Wagga	1	3	39	32	23
Melbourne	1	0	202	1,766	2,941
Shepparton	1	5	16	23	10
Brisbane	5	36	642	996	578
Toowoomba	0	6	70	51	20
Cairns	3	17	38	14	4
Townsville	1	17	96	34	8
Mackay	0	4	35	23	9
Rockhampton	0	18	70	15	6
Mt Isa	26	15	11	1	1
Adelaide	0	6	358	754	725
Port Augusta	10	13	7	1	3
Perth	7	76	477	781	698
Hobart	0	15	129	145	49
Launceston	0	1	55	47	19
Darwin	28	44	46	6	3
Alice Springs	16	11	4	1	1
Canberra	0	1	65	239	128

Source: Preliminary counts of the 1991 Census; special table produced by Census Applications Pty Ltd, Sydney.

To explore the practicalities of employing an area sampling frame, the extent to which the Phase 2 target population is spatially clustered within each urban centre (excluding those in Gold Coast and balance of Tasmania) is shown for the Aboriginal population in Tables 4 and 5 and for Torres Strait Islanders in Tables 6 and 7.

These data summarise the spatial distribution of the Aboriginal and Torres Strait Islander populations by indicating the number of urban CDs with varying proportions of the target population. These range from those CDs where Aborigines or Torres Strait Islanders constitute more than 10 per cent of the population to those where they are less than 1 per cent of the population. The number of CDs with no Aboriginal or Torres Strait Islander residents is also indicated.

The overall picture is one of limited concentration and widespread dispersion. For example, Table 4 indicates that Sydney Statistical Division

Table 5. Per cent distribution of Aboriginal population in urban Collection Districts with Aboriginal residents, 1991.

	Aboriginal proportion of CD population			
	over 10%	5.0-9.9%	1.0-4.9%	over 0-0.9%
Sydney	1.8	9.8	50.0	38.4
Gosford-Wyong	0.0	0.0	59.6	40.4
Newcastle	0.0	0.8	63.9	35.3
Wollongong	4.7	0.0	58.8	36.5
Wagga Wagga	15.7	15.7	59.2	9.4
Melbourne	0.5	0.0	29.2	70.3
Shepparton	18.7	30.9	40.4	10.0
Brisbane	2.9	11.4	61.4	24.3
Toowoomba	0.0	15.7	71.3	13.0
Cairns	11.2	47.0	38.9	2.9
Townsville	1.5	27.7	66.9	3.9
Mackay	0.0	14.9	73.2	11.9
Rockhampton	0.0	34.0	62.7	3.3
Mt Isa	73.7	19.2	7.0	0.1
Adelaide	0.0	3.4	63.5	33.1
Port Augusta	52.4	37.8	9.5	0.3
Perth	2.4	25.6	53.8	18.2
Hobart	0.0	27.6	55.6	16.8
Launceston	0.0	8.9	73.6	17.5
Darwin	44.2	40.5	14.8	0.5
Alice Springs	75.2	20.8	3.7	0.3
Canberra	0.0	0.8	43.7	55.5

Source: Preliminary counts of the 1991 Census; special table produced by Census Applications Pty Ltd, Sydney.

Table 6. Number of urban CDs with varying concentrations of Torres Strait Islanders, 1991.

	Torres Strait Islander proportion of CD population				
	over 10%	5.0-9.9%	1.0-4.9%	over 0.0-0.9%	0.0%
Sydney	0	0	111	1,255	4,213
Gosford-Wyong	0	0	2	75	375
Newcastle	0	0	6	55	215
Wollongong	0	0	5	53	225
Wagga Wagga	0	0	2	27	69
Melbourne	0	0	48	949	3,913
Shepparton	0	0	1	17	37
Brisbane	0	0	61	583	1,613
Toowoomba	0	0	3	35	109
Cairns	5	5	47	13	6
Townsville	0	2	46	62	47
Mackay	0	2	17	16	6
Rockhampton	0	0	15	52	42
Mt Isa	0	0	8	21	27
Adelaide	0	1	41	450	1,351
Port Augusta	0	0	0	7	27
Perth	0	0	8	232	1,799
Hobart	0	0	28	92	218
Launceston	0	0	4	34	84
Darwin	0	0	21	73	34
Alice Springs	0	0	1	9	26
Canberra	0	0	2	56	375

Source: Preliminary counts of the 1991 Census; special table produced by Census Applications Pty Ltd, Sydney.

is comprised of 5,579 CDs (CDs are comprised, on average, of 350 dwellings) of which 2,259 have no Aboriginal residents. Of the 3,320 CDs that contain Aboriginal residents, only five have a significant concentration of Aborigines (more than 10 per cent of the CD population) while the vast majority (2,518) have very low Aboriginal representation (less than 1 per cent of the population). The extent to which this distribution constitutes actual dispersion of the Aboriginal population is shown in Table 5. The five CDs with high concentrations of Aborigines collectively comprise only 1.8 per cent of the total Aboriginal population of Sydney. On the other hand, the 2,518 CDs with very low Aboriginal representation comprise 38.4 per cent of the total.

Put another way, by focussing on the the five CDs with obvious concentrations of Aborigines in Sydney, 1.8 per cent of the estimated target population can be accessed. If the next 40 CDs with some degree of Aboriginal concentration are introduced, then 11.6 per cent of the target population is brought into focus (1.8 plus 9.8). By adding a further 757

Table 7. Per cent distribution of Torres Strait Islanders in urban CDs with Torres Strait Islander residents, 1991.

	Torres Strait Islander proportion of CD population			
	over 10%	5.0-9.9%	1.0-4.9%	over 0.0-0.9%
Sydney	0.0	0.0	19.6	80.4
Gosford-Wyong	0.0	0.0	4.8	95.2
Newcastle	0.0	0.0	20.9	79.1
Wollongong	0.0	0.0	23.8	76.2
Wagga Wagga	0.0	0.0	18.7	81.3
Melbourne	0.0	0.0	10.8	89.2
Shepparton	0.0	0.0	11.3	88.7
Brisbane	0.0	0.0	25.9	74.1
Toowoomba	0.0	0.0	19.7	80.3
Cairns	22.0	14.0	59.1	4.9
Townsville	0.0	5.7	72.1	22.2
Mackay	0.0	21.1	55.7	23.2
Rockhampton	0.0	0.0	50.9	49.1
Mt Isa	0.0	0.0	55.2	44.8
Adelaide	0.0	0.1	17.2	82.7
Port Augusta	0.0	0.0	0.0	100.0
Perth	0.0	0.0	7.5	92.5
Hobart	0.0	0.0	56.4	43.6
Launceston	0.0	0.0	29.0	71.0
Darwin	0.0	0.0	52.0	48.0
Alice Springs	0.0	0.0	26.1	73.9
Canberra	0.0	0.0	8.8	91.2

Source: Preliminary counts of the 1991 Census; special table produced by Census Applications Pty Ltd, Sydney.

CDs, the proportion of the target population covered can be raised to 61.6 per cent. Providing that a decision can be made about omitting the 38.4 per cent of the target population living in very low densities, this may be considered sufficient coverage from which to draw a representative sample. However, a sample drawn from the 802 CDs so defined will still be faced with considerably high screening costs given that the bulk of the population within the sampling frame would be resident in areas where Aborigines constitute no more than 5 per cent of the total population. Clearly, given this distribution, Aboriginal households would be difficult to locate.

Moving down the list of urban centres, it is apparent that the pattern of population distribution described for Sydney is not exceptional. In Melbourne, for example, the bulk of the Aboriginal population is widely dispersed in very low densities across 1,766 CDs. Indeed, only in the smaller urban centres of Mt Isa, Port Augusta, Darwin and Alice Springs do Aborigines display any clear evidence of spatial concentration to an

extent which may form the basis for cost-effective area sampling. The situation among Torres Strait Islanders (Tables 6 and 7) is even more unequivocal, with only the population in Cairns showing any sign of a concentrated settlement pattern. In all other centres, Torres Strait Islanders display extreme dispersion throughout the urban area.

Multiplicity (network) sampling
In a multiplicity sample design, information is obtained from an initial selection of households. They may then be asked to nominate other households, with which they are linked in clearly defined ways, for the purpose of further information gathering or to serve as a proxy informant for other households and provide the required information on their behalf. This last approach is designed to reduce the high costs involved in tracing and interviewing nominated households. A common form of linkage employed is to obtain information from a network of households related by kinship. One variant of this approach is a United Kingdom study which used addresses adjacent to selected households as the basis for establishing linkage (Brown and Ritchie 1981). Basically, randomly selected households were asked whether they knew of any minority group households within visual distance to their left and right.

A number of difficulties are associated with multiplicity sampling, not the least being the possible reluctance or inability of individuals to provide information about others. Apart from the ethical questions that this raises, there is considerable potential for high non-sampling error. The primary advantage, in the event that selected individual households do provide information on behalf of others, is one of potential cost-savings (Rothbart, Fine and Sudman 1982). A basic question to consider is how the use of particular networks may influence the survey yield. For example, the pursuit of kinship networks is determined largely by the initial selection of households and care would need to be taken to ensure an adequate range of kin or family groups is included from the outset in order to maximise representation. However, given the dispersed distribution of Aboriginal and Torres Strait Islander people already noted, particularly within the larger urban centres, potential exists for whole sections of the population to be excluded. A critical consideration, therefore, is whether members of the target group know each other and are willing to divulge information about each other (Kalton and Anderson 1986: 73-5).

Snowball sampling
A more open-ended approach to chain referral is employed in snowball sampling (Biernacki and Waldorf 1981). This involves compiling a list for sampling by starting with a few members of the population and asking them to identify other members. These are then contacted and asked to identify others until a satisfactory frame has been compiled. Apart from

the costs of tracing and contacting individual households, the main issue with snowball sampling techniques again concerns the completeness of the frame. Rather than compile a list for sampling, another approach is to interview as the process unfolds and halt when a sufficient number have been completed. However, this may be subject to bias depending on the composition of the social networks that unfold. In some cases, and most notably in studies of Aboriginal and Torres Strait Islander urban populations, the process is allowed to continue until it comes full circle (Gale 1972: 14-20; Fisk, Duncan and Kehl 1974: 4-11; Smith and Biddle 1975: 7-16). However, this is expensive of both time and financial resources and still subject to concerns over coverage, although some form of cross-checking with small area census data can be employed to validate results.

Locational sampling

As the name suggests, locational sampling involves contacting members of the target group at particular locations where, by definition, they are likely to be found. Loveday and Lea (1985), for example, sampled the Aboriginal population of Katherine for a housing need study by locating interviewees on Katherine High Street, a popular thoroughfare. However, locational sampling has been found most applicable for groups, such as the homeless, who for the most part are difficult to contact but by virtue of their situation are likely to access a service network (such as overnight shelters, soup kitchens and refuges) or congregate in particular locations (such as city parks). However, in line with the findings of the Burdekin Inquiry (Burdekin 1989), it is suggested here that the most effective means of gathering information on homeless Aborigines and Torres Strait Islanders is via key informants from across the range of welfare and community organisations associated with the delivery of services, including those servicing the unsheltered sector of the homeless population.

At the same time, it should be noted that methods do exist which provide for probability sampling of homeless populations (Lynn 1992), although these are not entirely problem-free. Two studies in the United States, the Chicago homeless survey (Rossi, Wright, Fisher and Willis 1987) and the Los Angeles Skid Row study (Burnam and Koegel 1988), typify the approach. The first of these stratified city blocks by the expected number of people 'sleeping rough' and sampled these with selection proportional to population size. The second derived a sample based on facilities serving homeless individuals using estimates of the relative proportions of the homeless population that 'passed through' various facilities over a month's span. In both cases, several preliminary stages of research were necessary and this, together with the actual survey phase, required a considerable amount of time and resources. Apart from high non-response rates, one obvious difficulty with this type of probability

sampling is the potential mobility that can occur among the target group between the moment of establishing the sample frame and when the survey is actually conducted.

Census options for assessing housing need

It is worth recalling that the five-yearly census in Australia is a census of population *and housing*. Apart from providing a wide range of data on the social and economic characteristics of households and their constituent families, the census also contains information on the dwellings they occupy, including the number and type of rooms, the type of structure (whether a separate house, flat or caravan, etc.), and the type and amount of monthly rent or mortgage payments. Furthermore, these data are accessible separately for Aborigines and Torres Strait Islanders across Australia in any permutation of disaggregated units down to Collection District level. Preliminary 1991 Census counts of the Aboriginal and Torres Strait Islander population are already available and have been used to describe the spatial distribution of the Phase 2 target population. Final unit record file data will be available in stages starting with Tasmania and the Northern Territory in October 1992 and ending with Victoria some months later. While this introduces a time lag of more than 12 months between the collection of data and its availability, it is unlikely that the quality of information on the Aboriginal and Torres Strait Islander population would be significantly reduced as a result.

Phase 2 data requirements

The data requirements for housing need assessment are determined by the questions to be answered. In this regard, a primary task in Phase 2 of the ATSIC housing need assessment is to establish a gross estimate of the number of family units, and associated number of people, requiring additional housing. To answer this question in Phase 1, a range of data was obtained in respect of each dwelling and it is instructive to compare these data with those available from the census as summarised in Figure 3.

Not only are the data sought by ATSIC available from the census, the census also provides additional information ranging from the age distribution of household members to rental payments. In short, much of the information required for Phase 2 of the housing need assessment has already been collected in the 1991 Census.

Figure 3. ATSIC 1992 Housing and Infrastructure Needs Survey Phase 1 dwelling data and census check list.

	Available in Phase 1	Available in census
Type of dwelling (house, flat, etc.)	Yes	Yes
No. of bedrooms	Yes	Yes
Number of people (adults/children)	Yes	Yes
Family units	Yes	Yes
Aboriginal/Torres Strait Islander	Yes	Yes

ABS legislative responsibilities

The availability of data in the face of a proposal for a survey raises an interesting point in respect of the statistical coordination functions of the ABS as defined under section 6 of the *Census and Statistics Act 1975*. This stipulates that ABS should ensure 'the avoidance of duplication in the collection by official bodies of information for statistical purposes'. The intent of this provision was further emphasised by the report on the collection and dissemination of official statistics tabled by the Joint Committee of Public Accounts in 1981. This recommended an amendment to the *Census and Statistics Act* to provide for the maximum utilisation of available data (Commonwealth of Australia 1983: 28). In fulfilling these obligations, the ABS is also bound by the provisions of section 7 of the *Aboriginal and Torres Strait Islander Commission Act 1989* which requires the Bureau's concurrence in the collection of statistical information relating to Aborigines and Torres Strait Islanders.

Advantages of census data

Compared with the technical difficulties involved in designing a major survey and the time and resources required, there are distinct advantages in using the census as the primary data source for the assessment of Aboriginal and Torres Strait Islander housing need. First, since the census attempts to provide complete coverage of the Aboriginal and Torres Strait Islander population, it avoids the technical problem of having to select a representative sample. Furthermore, the target population may be disaggregated as required into geographic areas as well as into sub-groups based on characteristics such as age, family structure and tenure type. As for cost, the major outlays involved have already been expended in the conduct of the census, while production of specified tables would be at a fraction of the cost of conducting a survey.

Finally, the census is on-going and provides the basis for analysis of change over time. However, whether five-yearly intervals are too great for the task of monitoring the progress of housing programs is something that would need to be established.

Disadvantages of census data

The need for greater accuracy in the compilation of statistical information on the Aboriginal and Torres Strait Islander population is widely recognised (Altman 1992). As far as the census is concerned, ABS has increasingly sought to maximise its coverage of the Aboriginal and Torres Strait Islander population since they were first identified in 1971. These efforts have been evaluated by Choi and Gray (1985) with some indication of improvement over time, although as Gaminiratne and Tesfaghiorghis (1992: 99) point out, one of the main problems of successive census counts of Aborigines and Torres Strait Islanders is their inconsistency. At the local level, sufficient anecdotal evidence exists to suggest that the census provides a less than complete coverage of the Aboriginal and Torres Strait Islander population due partly to the fact that some Aboriginal households are not contacted by collectors, but also because full household sizes are sometimes not recorded in cases where numbers are higher than the maximum allowed under tenancy rules (Phibbs 1985b: 66). That some error exists seems irrefutable, although the extent of the problem is unknown. All that one can say using census-based social indicators (or data drawn from a sample survey for that matter) is that they probably provide for a minimum estimate of need, although questions have been raised regarding the possible inflation of Torres Strait Islander census figures (Arthur 1992: 59).

Other difficulties with census data include the inability to distinguish between dwellings rented from Aboriginal community housing organisations and those rented from other non-government landlords (Gray 1992: 116-17). Ownership of dwellings which are 'standard' housing structures is also indistinguishable from ownership of improvised dwellings, although this is less of a problem in large urban centres. The problem of ageing of census data has already been mentioned. One means of overcoming this in general housing studies has been to link census data with other more continuous administrative data bases such as DSS records (Phibbs 1985b), although potential problems exist in using these for the Aboriginal and Torres Strait Islander population due to the poor quality, or lack in some cases, of data based on self-identification (Dunn 1992).

Housing need indicators

The census provides data for a number of potential need indicators many of which are used by urban planners and State housing authorities to assess housing requirements. Two broad categories exist. The first

comprises a range of crowding measures based on the number of persons in a dwelling against the number of rooms/bedrooms, as well as the number of separate identifiable family units or households sharing a dwelling. The second combines indicators of housing affordability based on the proportion of income spent on housing costs.

As far as crowding measures are concerned, King (1973) and Field (1984) have employed census data to estimate the number of overcrowded and under-occupied dwellings in Australia. Obviously, the numbers vary according to the standards adopted, with lowest densities usually set at one person per room. A number of difficulties surround the measurement of need in this way and these are mainly to do with assumptions regarding the cultural appropriateness of one density measure over another, as well as the lack of information concerning the suitability of dwellings in other respects such as their size and overall physical condition.

Other measures include Gray's (1989) projection of the number of Aboriginal households using 1986 Census data as a base. It is estimated that between 1991 and 2001, an additional 23,786 Aboriginal households will have been formed due to the combined effect of high growth rates in the adult population and an increased splitting of families away from households which previously had joint living arrangements (see Table 8).

Table 8. Projected Aboriginal population and households, 1986-2021.

	Population	Annual growth (per cent)	Households	Annual growth (per cent)
1986	227,458	-	50,613	-
1991	252,908	2.1	60,460	3.6
1996	283,588	2.3	72,064	3.5
2001	315,641	2.1	84,246	3.1
2006	348,109	2.0	97,022	2.8
2011	380,809	1.8	110,841	2.7
2016	413,557	1.6	125,832	2.5
2021	444,542	1.4	141,340	2.3

Source: Gray (1989).

This figure can then be set against existing housing stock and expected future levels due to new construction, re-allocation and attrition, to derive an estimate of need. However, as Cullingworth (1958) points out, such household projections alone do not indicate how many family units

actually prefer to live separately. At the same time, they do provide a striking indication of the potential for backlogs to develop.

Indicators of housing affordability are defined in terms of spending an excessive proportion of household income on housing costs. Home buying as well as home-renting households are usually included in this calculation in order to incorporate marginal purchasers who may be forced from this tenure by a change in circumstance (Fleming, Hudson and Jeffrey 1985). Determination of what constitutes an excessive proportion of income varies slightly, but generally includes households receiving less than average weekly earnings and paying 25 per cent (Fleming Hudson and Jeffrey 1985) or 30 per cent (Phibbs 1985b: 139) on housing costs.

Data on household income and amount of monthly rental or mortgage payments are readily available from the census. For example, using 1981 Census data, Field (1984: 25) estimated that 350,000 people in Australia, or 7.7 per cent of all households, were within the income eligibility requirements for public housing but were nonetheless renting privately. In the event that such data are considered out of date, the tendency in housing need studies has been to use DSS information on those receiving pensions and benefits (Phibbs 1985b). Figures on the number of households receiving private rent assistance, for example, would give some indication of the latent demand for public housing, although in the context of ATSIC's requirements, mention has already been made of the potential difficulties in using such data, due to the problems of Aboriginal and Torres Strait Islander identification.

Conclusion

A range of technical options exist for the acquisition of data in Phase 2 of the ATSIC 1992 Housing and Community Infrastructure Needs Survey. At the broadest level, the basic choice of methodology lies between obtaining new information, by conducting a survey, or using data that already exist, primarily via the census. While either approach would yield data relevant to the task of estimating the scale of Aboriginal and Torres Strait Islander housing need, a distinct preference is advised in favour of a census-based approach. This is partly due to social science considerations regarding the relative reliability, validity and accuracy of data and partly to do with more practical considerations of time, money and public credibility.

The basis of any sound measurement strategy in the social sciences is whether it results in the production of data that are reliable, in the sense that they are consistent over time and space, and valid, in the sense that they adequately measure what they intend to measure (Chambers, Wedel

and Rodwell 1992: 189). In the context of data requirements for Phase 2, a survey approach has the potential to yield information which is no more (or less) reliable, or valid, than that available from the census. It is unlikely, however, that a survey would yield data with a level of accuracy comparable to that derived from the census given the much larger sample size (of the total Aboriginal and Torres Strait Islander population) that the census represents. Indeed, one of the main drawbacks of a survey option is the difficulties to be faced in drawing a representative sample from, what turns out to be, a target population which is spatially dispersed and unknown in quantity. While this is ultimately a technical problem which may be overcome with varying degrees of statistical confidence, there are costs incurred in both time and money which, in the final analysis, may be prohibitive.

While no precise estimates of the cost of a survey for Phase 2 exist, the cost of Phase 1 (about $2 million) provides a useful yardstick. However, this is likely to be an underestimate for Phase 2 since Phase 1 was based on the use of reference groups in discrete communities in contrast to the more expensive sampling procedures and teams of enumerators that an urban-based survey would require. Whatever the actual figure, it is clear that using the census as the primary data source would be relatively cost-effective. In terms of the cost in time, the special national survey of Aborigines and Torres Strait Islanders being developed by ABS faces many of the sample design issues raised here and has earmarked a planning phase prior to data collection of two years duration (Sims 1992). Faced with such constraints of time and money, it is not surprising that State housing authorities display a distinct preference for housing need assessment based on normative indicators drawn from existing data bases.

The use of social indicators no doubt falls short of adequately describing the complexity and range of housing circumstances and client expectations. At the same time, without wanting to pre-empt any outcome, there seems little doubt that a credible scale of need would be identified. In terms of ATSIC's requirements for intergovernmental budget negotiations, this appears to be the most pressing demand. In this context, it should be noted that the same trade-off between accuracy, ease of data access and data sufficiency is consistently made by Federal and State bureaucracies, not least in their estimation of housing need.

Conventional need assessment is based on an estimate of the number of extra dwellings necessary to overcome existing deficiencies (due to sharing and poor quality) plus those required to cater for the anticipated growth in households. As Gray (1989) points out, funding for Aboriginal housing programs produces three kinds of product in terms of housing stock: rental housing from State authorities, rental housing from Aboriginal organisations, and privately-owned dwellings. There are also

many Aboriginal and Torres Strait Islander families using housing not provided through any of these channels including those in improvised dwellings, those in the private rental market, those repaying mortgages from sources other than ATSIC, and those who have finished paying mortgages and are home owners (Gray 1992: 117). Only the last of these can be clearly identified using census data (which is rapidly dated) and there is urgent need to improve the monitoring of all stock changes as part of a comprehensive need assessment.

There is a growing tendency in housing studies to develop an holistic approach to need assessment focussing on particular geographic and socio-economic sub-groups. This involves a greater emphasis on the operation of local housing markets raising questions of tenure, policy and allocation - who obtains what, where and how? (Phibbs 1985b). A similar trend is apparent in discussions of Aboriginal housing policy (Sanders 1990) and this was noted by the Royal Commission into Aboriginal Deaths in Custody with a recommendation that, 'any future accommodation needs survey include not only an emphasis on the physical housing need but also incorporate assessments that relate to management, administrative and housing support needs' (Commonwealth of Australia, 1991b: 458). Perhaps any financial savings that result from adopting a census-based approach to measuring Aboriginal and Torres Strait Islander housing need in Phase 2 could be diverted towards addressing some of these outstanding issues.

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